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UMTA/TSC Project Evaluation Series

The User-Side Subsidy Taxi Program in the Harbor Area of Los Angeles, California

**Final Report
May 1980**

Service and Methods Demonstration Program



**U.S. DEPARTMENT OF TRANSPORTATION
Urban Mass Transportation Administration and
Research and Special Programs Administration
Transportation Systems Center**

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Technical Report Documentation Page

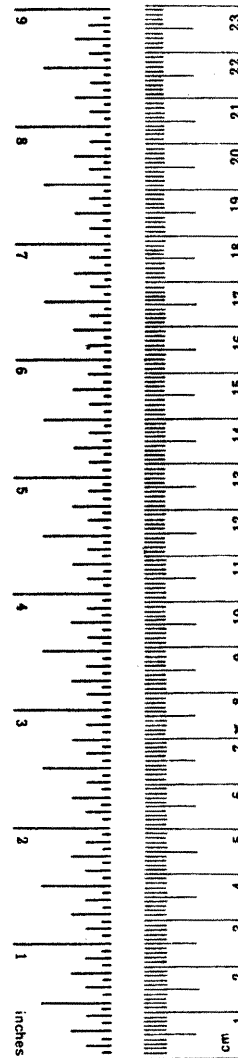
1. Report No. UMTA-MA-06-0049-80-9		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle The User-Side Subsidy Taxi Program in the Harbor Area of Los Angeles, California				5. Report Date May 1980	
				6. Performing Organization Code DOT-TSC-243	
				8. Performing Organization Report No.	
7. Author(s) Bruce Richard					
9. Performing Organization Name and Address Crain and Associates* 120 Santa Margarita Avenue Menlo Park, CA 94025				10. Work Unit No. (TRAIS) UM027 - R0712	
				11. Contract or Grant No. DOT-TSC-1408	
				13. Type of Report and Period Covered Final Report April 1978 - November 1979	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Urban Mass Transportation Administration Office of Planning Management and Demonstrations Washington, DC 20590				14. Sponsoring Agency Code	
15. Supplementary Notes *Under contract to: U.S. Department of Transportation Research and Special Programs Administration Transportation Systems Center, Cambridge, MA 02142					
16. Abstract <p>The Harbor Area user-side subsidy taxi program was designed to provide transportation for mobility-impaired elderly, handicapped, and low-income residents of this southern portion of the city of Los Angeles. The program was also planned to provide operating data for a comparison of user-side and provider-side programs in the city and county of Los Angeles.</p> <p>The objective of this report is to describe how the program operates, to provide detailed operating data, and to analyze the results of the program.</p> <p>The study relied on available data and personal interviews. Data included monthly operating reports, a survey of participants conducted by the city, and a sampling of waybills and rider coupons used in January and August 1979. Monthly contact was maintained with both the administering and operating agencies.</p>					
17. Key Words Elderly, handicapped, low-income, taxicabs, user-side subsidy			18. Distribution Statement DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 78	
				22. Price	

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

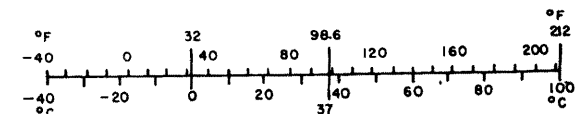
Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



PREFACE

The Harbor Area user-side subsidy taxi program was designed to provide transportation for mobility-impaired elderly, handicapped, and low-income residents of this southern portion of the City of Los Angeles. The program was also planned to provide operating data for a comparison of user-side and provider-side programs in the City and County of Los Angeles.

The objective of this report is to describe how the program operates, to provide detailed operating data, and to analyze the results of the program.

The study relied on available data and personal interviews. Data included monthly operating reports, a survey of participants conducted by the City, and a sampling of waybills and rider coupons used in January and August 1979. Monthly contact was maintained with both the administering and operating agencies.

The report has been prepared for the Transportation Systems Center. Robert Casey was the technical monitor for TSC. TSC was requested to undertake this study by James Bautz of the UMTA Service & Methods Demonstration Program office. He was the UMTA Project Manager for this work.

The initial study design was developed by Peter FitzGerald of Crain & Associates. Bruce Richard monitored the program and prepared the final report. David Koffman reviewed and revised the final report, which was typed by Barbara Law and Ruth Campbell. Molly Shinn prepared the maps.

The author wishes to extend special appreciation for the cooperation and assistance provided by Vern Spaulding and Dave Talcot of the City Department of Transportation; Wagih Maleka, Vice-President of Wilmington Cab Company; and Mark Zierten of the Southern California Association of Governments.

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1. EXECUTIVE SUMMARY

1.1 OVERVIEW

The user-side subsidy, shared-ride taxi program operating in the Harbor Area of Los Angeles, known locally as Share-A-Ride, is one of eleven special transportation efforts for mobility-impaired persons that are financed by the State's Transportation Development Act, Intra-Community Services funds in Los Angeles County. Besides offering a much needed service for the elderly, handicapped, and low-income residents of the Area, the objective of this program is to provide operating experience that will allow for a comparison of user-side and provider-side subsidy services.

In a user-side subsidy program, public funds are used to pay the difference between the established total trip price and a smaller fare paid directly by users. A provider-side subsidy pays the operator an amount based on measures other than actual usage, such as percent of total deficit, vehicle miles or vehicle hours. Thus, a user-side subsidy pays only for services used and should thereby encourage operator efficiency and quality service.

The Harbor Area is composed of the communities of San Pedro, Wilmington, and Harbor City in the City of Los Angeles. The population is 127,000. About 30,000 are eligible for the program, including 19,000 persons of age 60 and over, 1,000 persons who are transportation handicapped* and under 60, and about 10,000 adults who are neither elderly nor handicapped but receive some form of aid to the dependent.

The program is administered by the City Department of Transportation and has been granted funds by the Los Angeles

*According to staff estimates. This appears to represent those with relatively severe handicaps.

County Transportation Commission, initially in November 1977 and now through fiscal year 1980/81.

1.2 OPERATION

The only franchised taxi operator in the Harbor Area—the Wilmington Cab Company—began the service on August 13, 1978. It was designed to operate much like a normal taxi service. Another agency—the Harbor Community Development Corporation—advertises the service and sells books of ten coupons to eligible participants for \$1.50. Each person may purchase up to two books per month and the coupons are valid for two months.

For one 15¢ coupon, riders may travel only within the service area—about 20 square miles—and only as far as a \$3.00 meter limit will take them, about 2.6 miles. Shared riding is encouraged by adding \$3.00 to the meter limit for each second and subsequent passenger in a shared ride. If a trip exceeds the allowable meter limit, the rider(s) pay the excess in cash. Approximately 15% of exclusive-ride trips involved excess user payments averaging \$1. Essentially no shared-ride trips required excess payments.

All coupon revenue reverts to the City for a carry-over for the next year of operation. Each month, the City reimburses the operator the total meter charges (up to the limits), a 15¢ bonus for each extra rider in a shared ride, the monthly lease cost for a wheelchair-accessible van, and, only in the last three months, the salary and benefits of an additional ordertaker, whose services were necessitated by the program.

As of the end of November 1979 (15 and a half months of operation), the program had carried a total of 67,534 passengers in 54,475 vehicle trips. Taxis logged 97,268 paid miles for the program, and the total operating cost (meter charges plus the shared-ride bonus) amounted to

\$135,441. Figure 1 show the program's ridership growth by plotting the average weekly patronage for each month.

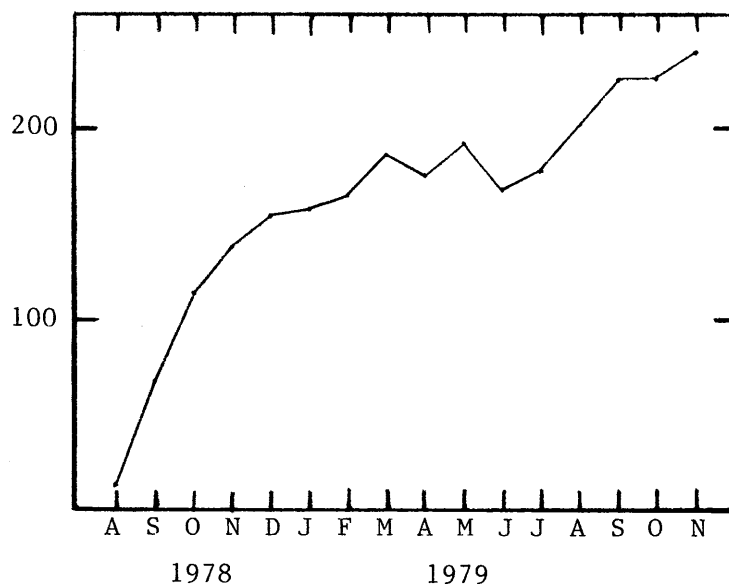


FIGURE 1. AVERAGE WEEKDAY RIDERSHIP, BY MONTH

The response time for picking up program passengers has been slow compared to non-program riders. When service began, all passengers had to wait an average of only 10 to 15 minutes. However, as demand grew, so did response time. In January, passengers waited 30 to 40 minutes, and there has been no significant improvement since. On the other hand, regular taxi patrons now wait 15 to 30 minutes for a ride. The overall increase in response times may be a result of increased ridership being served without any additions to the fleet. The cause of slower response times for program participants is not known for certain; however, possible causes include: 1) the taxi company's efforts to group program rides, and 2) the operator's perception that program trips were less profitable than non-program trips.

The taxi company asks that program participants phone in their requests at least one hour in advance to allow

time for grouping trips. Those who comply with this condition experience wait time (i.e., lateness compared to promised pick-up time) similar to non-program riders according to the company. The average wait time is lengthened by those who call for immediate service (75%) and by requests of or the one wheelchair-equipped van (10% of all requests).

Ridership grew briskly in the first six months of operation, remained fairly stable from March to August, averaging 4,845 passenger trips per month and 183 per weekday, and increased again in September, October and November averaging 5,986 passenger trips per month and 230 per weekday.

The amount of shared riding has been a disappointment to the city and the taxi operator. Only 18% of program vehicle trips carried two or more riders, and average occupancy was 1.24 passengers per vehicle trip. Before the program started, 27% of vehicle trips were shared, and all trips averaged 1.47 passengers.*

The nominal fare for the service is one 15¢ coupon. However, the average revenue was 24¢ per passenger trip because about one-third of the coupons purchased were never used.

Average distances traveled by both vehicles and passengers were lower than expected by the city and the operator. The average vehicle trip length (paid miles) was only 1.79 miles compared to 3.74 for all taxi trips handled by the cab company between November 1, 1978 and October 31, 1979. It is estimated that the average

*This comparison may be slightly misleading in that no separate figures are available on shared rides prior to the program for the population segments eligible for the subsidy. On the other hand, the taxi operator is not allowed to group regular riders unless requested by them.

passenger trip length was 1.85 miles. Riders sharing a taxi took advantage of their increased meter limit by riding an average of 2.74 miles, compared to an average trip length of 1.58 miles for exclusive riders.

1.3 PRODUCTIVITY AND ECONOMICS

Several measures of productivity and operating costs are shown below in Table 1, which compares these measures for exclusive trips, shared trips, all program trips, and all trips operated by the cab company for one year during the program.

The most common measure of efficiency used by the taxi industry is the percentage of total miles that are paid (i.e., the percentage of total miles for which the meter is running). It was estimated that the program achieved 44% paid miles, slightly higher than the operator averaged in one-year during the program. This measure and other measures of cost and productivity shown in Table 1 confirm that shared riding is significantly more efficient than exclusive riding.

Including administrative expenses, the average total cost (including profit) per passenger trip was \$3.07. After deducting the average revenue, the net--or public--cost for that trip was \$2.83.

TABLE 1.
COMPARISON OF PRODUCTIVITY AND COST RATIOS

Measure	Program			
	Ex- clusive Trips	Shared Trips	All Trips	Cab Company ¹
Passenger/Vehicle trip	1.0	2.3	1.24	1.4
Paid miles/ Total miles	42%	50%	44%	43%
Passenger miles/Vehicle trip	1.4	6.4	2.3	--
Passenger miles/Total vehicle miles	0.4	1.1	0.6	---
Meter charge/Passenger trip	\$2.19	\$1.63	\$2.01	\$3.16
Meter charge/Passenger mile	\$1.57	\$0.60	\$1.08	--

¹Wilmington Cab Company data November 1978 through October 1979.

1.4 IMPACTS

Of an estimated 30,000 persons eligible for the program, only about 1,000 person, or 3%, have participated. Active participants made about eight trips per month in the taxi program, corresponding to about 15% of the estimated individual transportation needs of a typical transportation handicapped person, according to estimated by staff of the Southern California Association of Governments (SCAG).

Program users are almost all elderly, more than half are elderly and handicapped, and nearly half are elderly and handicapped and low-income. Most of them live alone or with one other person and comprise a relatively transit-dependent group.

Riders are fairly well satisfied with the service, although they frequently find the phone line busy and must wait from 30 to 40 minutes on a request for immediate service. Half of the survey respondents report that they needed to reach destinations outside the area.

Nevertheless, most users surveyed felt that the service filled their unmet transportation needs completely or greatly, and almost all of them stated that it had made a positive change in their life.

Because of the unanticipated burden of administrative functions, and the relatively short trips requested, the operator felt that program trips had been less profitable than non-program trips. The financial position of the operator was improved for the last three months of the first year's operation because the salary and benefit costs of an extra ordertaker were included with reimbursable costs. The second year's contract provides further financial incentives for the operator by adding payments for overhead.

The program appears to be compatible with the Cab Company's normal taxi operation. However, response time for program requests worsened during the year relative to non-program requests.

1.5 CONCLUSIONS

The major conclusions resulting from this study are as follows:

1. The user-side subsidy concept, employing an existing taxi operator with a meter fare structure, is clearly a workable, efficient method of providing transportation for a mobility-impaired population.
2. Only 3% of the eligible population has participated in the program. They are almost all elderly; more than half are elderly and handicapped; nearly half are elderly and handicapped and low-income. They live alone or with one other person, are relatively transit-dependent, and use the service about eight times per month.

3. The average total cost per passenger trip was \$3.07 (including \$2.01 meter charge, \$.40 in other operating costs, and \$.66 administrative cost) and the average revenue was 24¢. The net--public--cost was \$2.83, or 92% of the total. This was lower than the cost of other comparable user-side and all provider-side subsidy programs in Los Angeles County. However, relatively short trip lengths helped keep costs down.
4. The amount of shared riding was lower than expected, but increased with an increase in taxi meter rates. Eighteen percent of vehicle trips carried two or more riders and the average occupancy was 1.24 passengers. There was little incentive for either users or the operator to group trips and participation by elderly or handicapped organizations (whose clients tend to make group trips) was low.
5. Response time for program pickups worsened over the year of operation relative to response time for other requests, probably due to an effort by the cab company to group independent requests.
6. Profitability of the program to the operator was apparently lower than the profitability of normal operation. However, no long-term problems resulted, and the operator's financial position will be greatly improved in the second year. The operator has stated that second year profits should cover first year losses. The major reason for the lack of profitability was an unexpectedly large administrative burden, which was not reimbursed by the City until the ninth month of operation. Relatively short trip lengths also contributed to the problem.
7. An increase in taxi meter rates in February led to a small but measurable change in the way participants used the service. Exclusive trips shortened and shared riding increased.

2. PROGRAM SETTING

2.1 INVOLVEMENT OF THE SERVICE AND METHODS DEMONSTRATION PROGRAM

The Service and Methods Demonstration Program (SMD) is involved in demonstrating and evaluating many different concepts for providing special services including five user-side subsidy operations in Danville, Illinois; Montgomery, Alabama; Kinston, North Carolina; Lawrence, Massachusetts; and Milton Townwhip (Chicago), Illinois. In addition, the SMD Program is monitoring other locally initiated user-side subsidy programs in Kansas City, Missouri; the San Francisco Bay Area and the State of West Virginia. In 1978, the SMD Program Office requested the Transportation Systems Center to undertake a case study of the Harbor Area Program.

The case study focused on issues of ridership, shared riding, productivity, economics and impacts. However, no special data collection efforts were to be included, the case study relied on information made available by the City and the taxi operator. This report represents the culmination of the case study effort.

2.2 GEOGRAPHIC SETTING

The Harbor Area Program operates within the city limits of Los Angeles in a well-defined southern extension of the city, which includes the Los Angeles harbor. The program area includes part of a long, narrow corridor which connects the Los Angeles central business district with its harbor but is mainly composed of the communities of Wilmington, San Pedro, and Harbor City. Figure 2 shows the location of the program area in metropolitan Los Angeles.

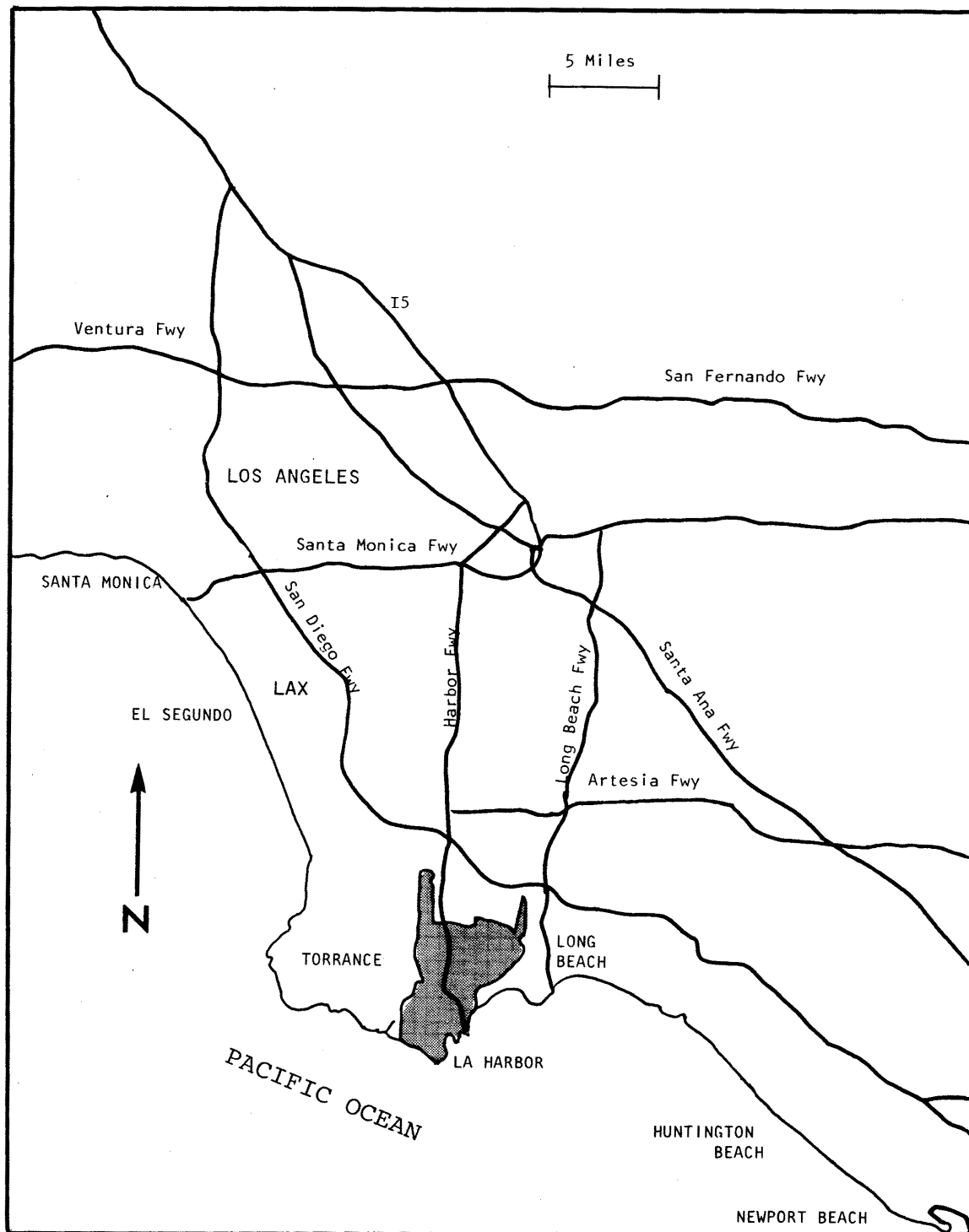


FIGURE 2. LOCATION OF PROGRAM AREA

In addition to the project area within the city limits, certain destinations of particular importance to the target population are close by and also allowable. They are Harbor General Hospital, five other hospitals or medical facilities, and one large shopping center. The service area is fairly small—about 20 square miles—and the longest dimension is about eight miles north to south. Figure 3 is a detailed map of the area served.

This section of Los Angeles includes residential and industrial uses and, as the name implies, is in the heart of the active Los Angeles Harbor.

2.3 DEMOGRAPHICS OF THE HARBOR AREA

The Southern California Association of Governments (SCAG) provided population data that were the result of a 1978 estimate. It showed that the total population of the Harbor Area was about 127,000 and that the population of those of age 60 and over was 19,000, or 15%. No specific data were available regarding incidence of physical disabilities or low levels of income among seniors. However, SCAG estimates that there are about 1900 non-institutionalized transportation-handicapped persons of all ages in the service area*and that half of them are of age 65 or older. In addition, not counting those over 60 or the handicapped, approximately 10,000 persons who reside in the Harbor Area receive some form of aid to the dependent and are 21 years of age or over, thus qualifying for the program as low-income.

Therefore, the target population of elderly (of age 60 and over), transportation-handicapped, and low-income persons is about 30,000, or one-fourth of the total population.

*This amounts to a 1.5% incidence rate, much lower than the nationwide average of 5%, indicating that only relatively severely handicapped persons have been considered.

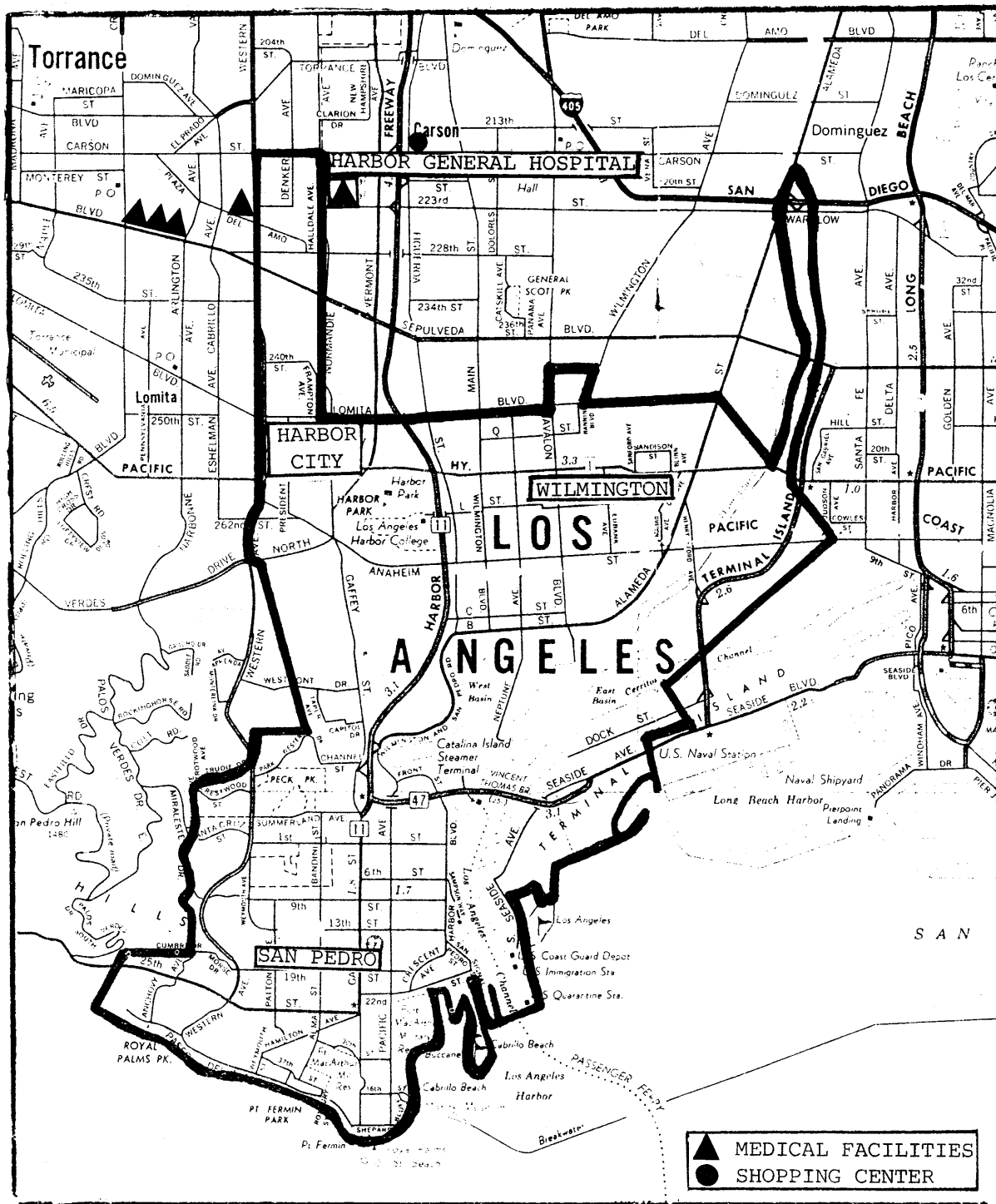


FIGURE 3. MAP OF THE PROGRAM AREA

2.4 TRANSPORTATION RESOURCES

2.4.1 Public Transit

The Harbor Area is well served by public transportation. The Southern California Rapid Transit District (SCRTD) operates several trunk routes from the area to downtown at 30- or 60-minute headways. In addition, several local or circulation routes are scheduled to connect with the trunk routes and provide service within San Pedro and Wilmington.

The neighboring cities of Torrance to the northwest and Long Beach to the east provide municipal transit services also, and connect with the SCRTD routes in Harbor City and San Pedro, respectively.

Transit fares for all operators are 40¢ for regular fares, 15¢ for seniors and handicapped, and SCRTD sells a monthly pass for \$4.00 to persons of age 62 and over.

2.4.2 Private Transit

The City of Los Angeles is divided into nine taxi franchise areas. The service area for this program coincides almost precisely with franchise area E, and the only franchised taxi operator is the Wilmington Cab Company (also known as United Checker), which is the operator of the Harbor Area Program.

From November 1, 1978, through October 31, 1979, Wilmington Cab Company, with a fleet of 22 Checker Cabs, averaged 34,925 passengers per month in 24,897 vehicle trips, generating \$110,290 gross revenue per month. Each vehicle trip averaged 3.74 paid miles and 8.64 total miles. Note, however, that this data includes trips to the Los Angeles International Airport (which is about 17 miles from the

center of the service area) as well as other trips that are longer than program trips could be, because they serve destinations outside the program boundaries.

2.4.3 Social Service Agency Transportation

According to a recent (December 1978) survey by the Southern California Association of Governments, about 50 social-service agencies, private and public operators, provide some form of transportation in the Harbor Area. In most cases, services are provided free for agency clients. Thus, a large share of the potential shared trips are provided—and have been for some time—by agencies. This may be one reason for the relatively low level of shared riding experienced in this program.

2.5 INSTITUTIONAL SETTING

The huge metropolitan area of Los Angeles encompasses several layers of bureaucracy with transportation responsibilities. Figure 4 is an organization chart of the relevant agencies.

The Southern California Association of Governments has the largest geographic scope and is the Metropolitan Planning Organization. It has major planning responsibilities and allocates state and federal funds to counties and for intercounty purposes.

Below this regional agency are several county-level organizations. In this case, the Los Angeles County

Transportation Commission (LACTC) has some planning responsibility and has authority to allocate transportation funds within the county, including State Transportation Development Act funds, which are used for the Harbor Area Program.

Coordinating with and assisting LACTC are several municipal organizations, including the Los Angeles City Department of Transportation. This Department was formed in August 1979 by combining the transportation functions of several other city departments, including Public Utilities and Transportation, which had regulated taxi fares, and Community Development. These two departments collaborated in planning the Harbor Area Program.

The function of regulating taxi fares and service is now in the new Department of Transportation. That department awards franchises, regulates fares, and makes periodic checks of the response time of cab companies for answering phone calls and picking up passengers. If a taxi operator fails to meet a set standard for either of the above checks, an additional franchise fee may be charged.

3. PROGRAM DEVELOPMENT AND OPERATIONS

3.1 PROGRAM DEVELOPMENT AND FUNDING

Since 1973, the City of Los Angeles has been experimenting with paratransit operations primarily intended for residents with limited mobility. In November of 1976, the City performed an evaluation of the five operating dial-a-ride (provider-side subsidy) services and concluded that vehicle productivity and per-passenger subsidies did not compare favorably with a sampling of eleven other dial-a-ride operations throughout the country.

Consequently, the Departments of Community Development and Public Utilities & Transportation designed a taxi-operated user-side subsidy program for the Harbor Area. Funding through the State Transportation Development Act (TDA), Article 4.5 (Intra-community Services) was approved by the Los Angeles County Transportation Commission in November 1977.

3.1.1 Other Los Angeles Demonstration Programs

In fiscal year 1979-80, the Los Angeles County Transportation Commission, using TDA Article 4.5 monies, is funding three other user-side subsidy programs, eight provider-side subsidy programs, and a study which will lead to an implementation plan for provision of services through a brokerage concept. The present objective is to determine which type of service will be most effective and efficient in different types of communities within this diverse southern California county.

The City's Department of Transportation is sponsoring two of the user-side subsidy projects in the Harbor Area and Echo Park/Silverlake and five of the dial-a-ride or provider-side subsidy projects in Venice, Beverly/Fairfax, Hollywood/Wilshire, West Lake/West Adams, and Pacoima.

3.1.2 Objectives of the Harbor Area Program

From both a county- and city-wide perspective, the major objective of the Harbor Area Program is to develop hard operating data that could be used to compare a user-side subsidy operation with provider-side subsidy operations. From a local perspective, "the primary objective is to increase the mobility of senior citizens and handicapped persons by providing safe, comfortable, and convenient public transportation throughout the service area and to increase the mobility of other service area residents [low-income persons] as demand permits."

3.2 PROGRAM IMPLEMENTATION

Funding for the Harbor Area and other programs was approved in November 1977. During the next eight months, the Community Development Department negotiated a contract with the Wilmington Cab Company of California, Incorporated. This is the only taxi operator in the project area. The final contract was executed in June 1978.

3.2.1 Ticket Distribution and Publicity

The first action required of the taxi operator was to contract for the printing and distribution of rider

coupons and for publicity for the program. This feature is fairly unique. Typically, either the operator or the administering agency is responsible for publicity and coupon distribution. The taxi operator let a Request for Proposals, but received only one bid. By August 1978, a contract had been executed with the Harbor Community Development Corporation, a private, nonprofit organization with three offices in the area-Wilmington, Harbor City, and San Pedro-providing a multitude of social services for people of all ages.

Books of ten rider coupons were to be sold to eligible residents for a face value of \$1.50. There was no program registration or certification process. Books were sold to anyone meeting the criteria listed below. A limit of two books per person per month was set and, initially, the coupons were valid for a period of 30 days. Rider coupons were to be sold to residents of the program area according to the following priorities:

Seniors (of age 60 and over)	65%
Handicapped (visual or doctor's certification)	10%
Others (of age 21 or over and proof of being on aid to the dependent)	25%

Harbor Community Development Corporation then began to publicize the program, including spots on a local Spanish-language radio station and through contacts with other social service agencies.

3.2.2 Taxi Operation

In mid-August 1978, Wilmington Cab Company began actual operation of the program, known as Share-a-Ride. Except for the details of service area, fare structure and subsidy mechanism, shared riding, and administrative functions which are described below, the program operates precisely the same as regular taxi service.

Although program participants call in requests for service on a separate phone line, they expect their call to be answered as quickly as the general public, they expect to be picked up as quickly as the general public, and service is available to them 24 hours a day for seven days a week. The dispatcher determines which cab would be most readily available and sends it. Except for one wheelchair-lift-equipped van, there are no specific vehicles assigned to the program; the entire fleet is available. Use of the van, however, does require advance notice of one hour.*

3.3 OPERATING CHARACTERISTICS

Details of the operation of the program that differ from normal taxi operation are outlined below.

3.3.1 Service Area

While regular taxi patrons can be taken anywhere, program riders may travel only within the program area. The program area shown in Figure 3 conforms to the Los Angeles city limits surrounding Wilmington, Harbor City, and San Pedro. The area also conforms to the franchise area in which Wilmington Cab Company operates, except for a small portion of the narrow corridor connecting to downtown Los Angeles. There are seven specific exceptions to these boundaries which are just outside the city limits. Six of them are medical facilities and one is a major shopping center. Riders may not travel outside these boundaries except to or from the seven specific destinations. This strict limitation on the service area encourages use of the operation for short trips and reduces the incentive for shared riding.

*Response time figures reported by Wilmington Cab Company include the van--the overall program average would be slightly less if it were separate.

3.3.2 Fare Structure and Subsidy Mechanism

Wilmington Cab Company employs a meter fare structure which is presently as follows:

- \$1.00 for the first 1/8 mile,
- .20 for each additional 1/4 mile, and
- .20 for each 1-1/2 minutes delay time.

Program users pay for their taxi trip with prepaid coupons which they have purchased for 15¢ each in books of ten. Each coupon is valid for a meter fare of \$3.00, which corresponds to a distance of approximately 2.6 miles. If riders wish to travel farther, they may do so by paying in cash for the amount in excess of \$3.00.

At the end of the trip, the rider surrenders a coupon to the driver, who enters the mileage and meter fare incurred. The coupon is returned to the rider, who signs it (acknowledging the fare) and returns it to the driver, who also indicates on his waybill that the trip had been a program trip. At the end of each month, the Cab Company submits all waybills and coupons to the City with an accounting of the total fares charged. This includes a bonus of 15¢ for each second and subsequent rider in a shared trip. The City reimburses the operator the total amount, and all income from the sale of coupons reverts to the City as a carryover for the next year of operation.

Using prepaid tickets which must still be signed and completed with trip dates, combines features of two common user-side subsidy mechanisms. The system appears somewhat cumbersome, since it requires more effort from riders than a pure voucher system (in which riders sign operator-provided charge-slips, and pay their share to the operator), and more effort from the operators than a pure ticket or scrip system. The main advantage appears to be in reducing

the opportunity for fraud in the voucher system (operators turning in forged charge-slips for trips that were never taken), while avoiding the large prepurchase requirement usually involved in scrip systems, and still allowing operators to be reimbursed on a mileage basis, rather than on an average fare basis.

3.3.3 Shared Riding

Wilmington Cab Company provided shared-ride service prior to the start of the program. However, the company is not allowed to group two or more non-program riders who request service independently. Non-program shared riding occurs only when two or more riders request service together. A sampling of seven days in June 1978 revealed that nearly 29% of vehicle trips were shared by two or more riders, and each vehicle trip carried an average of 1.47 passengers.

In order to maximize the number of person trips provided within the funds available, the designers of the Harbor Area Program intended to encourage shared riding by allowing the taxi operator to group two or more independent requests into one taxi trip. A very reasonable-seeming goal of 25% of vehicle trips carrying two or more riders was set. Mixing of program and non-program riders was not allowed--unless requested--but there was virtually no incidence of such activity.

The mechanism that has been used to encourage participants to share rides is simply to increase the \$3.00 meter fare limit by \$3.00 for each additional passenger. In other words, a group of three persons could travel about 7.8 miles, running the meter to \$9.00, for a fare of 15¢ per passenger. As an incentive to the Cab Company to group rides, the City pays 15¢ for each extra rider in a shared vehicle trip.

The use of a meter fare in a user-side subsidy program is another feature of the Harbor Program that differs from most. It has been widely accepted that a meter fare would produce inequities for riders who are grouped by the operator. This would occur if the first rider were deviated from a direct trip to pick up a second rider, thus incurring a higher metered fare. This problem was eliminated, however, by making the rider's share a flat 15¢, regardless of trip length. Moreover, if a second rider joins the trip, this will not cause the first rider to run up against the \$3.00 meter limit, since the limit is then raised to \$6.00. In any event, the taxi operator grouped very few trips on his own (most shared trips were two or more people with at least one trip end in common).

3.3.4 Administrative Functions

One aspect of the Harbor Area Program that has caused friction between the City and the operator is the requirement of administrative work to be done by the Cab Company. When a program rider calls for service, the dispatcher is required to make entries on his log which are not required for other users. Drivers must record mileage and fares on coupons used for program trips. Finally, the Company is responsible for compiling all pertinent data including vehicle trips, passenger trips, mileage, and meter charges. (A summary table for the program to date is in Appendix A.)

Very early in the operation of the program, the Cab Company hired an extra ordertaker specifically to handle these additional administrative functions as well as additional demand. Furthermore, the contract stipulated

that after three months the City and the operator will review the necessity of hiring an extra ordertaker/dispatcher for the project and, if mutually agreeable, will fund such work out of the existing budget by means of a contract amendment. After nine months of operation, the City agreed to such an amendment.

3.4 OPERATIONAL CHANGES DURING THE DEMONSTRATION PERIOD

3.4.1 Taxi Fares

On February 6, 1979, Wilmington Cab Company implemented a rate increase, which is shown below:

	<u>before</u>	<u>after</u>
flag drop:	\$1.00 for 1st 1/7 mile	\$1.00 for 1st 1/8 mile
mileage rate:	.20 for ea. 2/7 mile	.20 for ea. 1/4 mile
wait-time rate:	.20 for ea. 1-1/2 min.	.20 for ea. 1-1/2 min.

This increase translates to a raise from 70¢ to 80¢ per mile and is absorbed in most cases by the subsidy mechanism. Perhaps the most important impact of the increase on the program was to reduce the allowable length of a subsidized trip. The \$3.00 limit had provided for a trip of about 3.0 miles (assuming no delay-time charges). With the rate increase, a \$3.00 meter limit now provides for a trip of only 2.6 miles, assuming no delays. Therefore, exclusive riders faced a reduction of about 13% in the distance they could travel for one coupon.

It appears that this fare increase had an impact on the program in terms of exclusive ride trip lengths and shared riding. This is explained in detail in Sections 3.5.2 and 3.5.3.

Although a specific measure of fare elasticity could not be made, the fare increase did have a small effect on the way participants used the service.

3.4.2 Coupon Validity Period

When the Harbor Area Program began, coupons were valid for only 30 days. Early in the operation, the Cab Company argued that a 60-day validity period would be more convenient for participants. Analysis of detailed data from January showed that half of the individuals participating in the program used the service only eight times or less during the month, whereas coupons had to be purchased in books of ten.

By January 1979, the new 60-day policy was in effect but the impact on ridership was not measurable.

In April, the taxi operator unilaterally reversed that policy back to the 30-day validity period. He found that some people were purchasing many more coupons than they needed and, since there was a limit on how many coupons could be sold in a month, other potential participants were not able to buy coupons. By limiting validity to one month and enforcing the 2-book limit, the program would be able to serve a larger number of individuals.

The immediate effect of this reversal was that coupons purchased in March were not valid in April, and April coupons were to be valid only for that month. In April, many holders of the suddenly worthless March coupons apparently decided not to buy more coupons right away, and so did not use the service in April. This seems to be the major reason for a decline in average daily patronage--the first decline of the program. Another effect of that action was that a record number of ticket books was purchased. Apparently, some participants who had March coupons and would not have purchased more in April added to the normal April purchases.

After April, there were no apparent problems related to coupon validity period. There was never a policy allowing redemption of unused coupons.

3.5 SERVICE PERFORMANCE

3.5.1 Responsiveness

The program was designed to operate as much like a regular taxi service as possible, particularly in regard to the responsiveness of the service to requests. Riders expected to have their telephone call answered promptly, and they expected to be picked up immediately.

When the service began, the operation was smooth and responsive. However, as ridership grew, response times to program requests also grew. In a survey conducted in March (see Section 5.1.1), nearly 30% of users indicated that they had difficulty getting the service because the program phone line was busy or because they had to wait for a long time to be picked up.

Monthly data compiled by the operator confirms the latter complaint. The average response time (for pickup) was a respectable 10 to 15 minutes in August 1978. In January, response time had increased to from 30 to 40 minutes and, with few exceptions, has stayed in that range ever since.

Over the same period of time, the Cab Company's response times for requests from the general public have also increased. An annual test of taxi responsiveness conducted by the City's Department of Public Utilities and Transportation (now the Department of Transportation) in 1978 showed that the Wilmington Cab Company was one of the best in the city. The test showed that 94% of requests were picked up within 30 minutes, and the average response time was about 10 minutes. The taxi operator estimated that the average response time for the general public in August 1979 had grown to from 15 to 30 minutes.

In an effort to increase shared riding, the operator requested that program participants make their requests

at least one hour in advance so that he could group two or more independent requests for service. All requests for the wheelchair lift-equipped van must be made an hour in advance. Although no specific data were available, the operator indicated that about 20% to 30% of program requests were made an hour in advance. Response time for them (measured as lateness from the requested time) was substantially better than for immediate requests.

Response times for immediate requests were slowed partially because of the cab company's effort to group independent requests. The operator's perception that program trips are less profitable than other trips (see Section 5.2) may also have played some role. A probable explanation for the overall decrease in response time for program and non-program trips may be found in the fact that the cab company's fleet size stayed constant, despite an increase in trips served of about 15% (see Section 5.2.1).

In summary, although response times for the general public have increased during the program, response times for program requests, at least requests for immediate service, have increased by a larger amount. In addition, some program participants make their requests one hour in advance and therefore enjoy a somewhat lower level of service. Thus, the operation is less responsive to program requests than it is to the general public.

3.5.2 Ridership and Shared Riding

The Harbor Area Program established two targets for the service:

- (1) to provide 6,140 passenger trips per month, and
- (2) to group rides so that 25% of vehicle trips would carry two or more riders.

The first target was really more of a budgetary constraint than a goal. It had been estimated that 6,140 passenger trips per month over twelve months would use up the entire budget allowed for actual service. The other target--25% shared rides--was an important concept of the program and was required of the Cab Company to insure efficiency. It seemed quite reasonable at the time, since, in the nine months before the program began, 29% of vehicle trips were shared and the average occupancy had been 1.47 passengers per trip. Average occupancy from November 1978 through October 1979 for all trips dropped to 1.40 passengers per trip.

In October and November, 1979, the targeted patronage was reached. However, the proportion of vehicle trips which were shared never surpassed 20%. Table 2 lists program ridership by month, with the average weekday patronage, average vehicle occupancy, and the percentage of vehicle trips that were shared. No separate figures are available on trips made on the wheelchair accessible van.

The fact that the program did not achieve its goal of 25% shared rides is important, primarily because shared riding was to be a key feature of this service. Note, however, that shared riding has increased over the life of the program. All measures of shared riding showed small increases in March and have remained stable since then. Average vehicle occupancy increased from 1.18 in the months before March to 1.26 since then. Similarly, average vehicle occupancy for shared trips increased from 2.17 to 2.39 and the proportion of vehicle trips carrying two or more passengers increased from an average of 14.8% to 18.3%. Presumably, the taxi fare increase in February forced some exclusive riders to share their trips, both with other exclusive riders and with groups, as evidenced by the increase in vehicle occupancy for shared trips.

Table 2.
RIDERSHIP AND SHARED RIDING

<u>Month</u>	<u>Total Rider- ship</u>	<u>Average Weekday Ridership</u>	<u>Average Vehicle Occupancy</u>	<u>% of Vehicle Trips Shared</u>
August (½ mo.)	150	10.2	1.10	10
September	1,607	67.5	1.14	12
October	2,953	112.7	1.21	16
November	3,497	137.5	1.19	16
December	4,067	153.3	1.22	19
January 1979	4,148	157.6	1.20	16
February	4,081	164.6	1.22	16
March	5,014	186.9	1.25	19
April	4,486	175.2	1.23	18
May	4,988	191.0	1.28	19
June	4,465	168.2	1.29	18
July	4,568	177.8	1.27	19
August	5,547	201.5	1.27	19
September	5,565	225.0	1.26	20
October	6,229	225.8	1.23	17
November	<u>6,165</u>	<u>238.8</u>	<u>1.25</u>	<u>18</u>
Program Total	67,534	166.1	1.24	18
Cab Company ¹	34,925/mo	NA	1.40	29 ²

¹ Averages from the period November 1, 1978 through October 31, 1979.

² Sample Data from June 1978.

Nevertheless the amount of shared riding was below expectations. Staff of the City's Transportation Department and the County's Transportation Commission have suggested two reasons. First, people aren't too inclined to share rides in the first place. Since it is an immediate-response service, they feel that they should be able to simply call for a ride and not have to plan the trip with a friend or relative. Second, the taxi operator has only a limited ability to group rides himself, since grouping tends to delay at least one of the riders, who then complains about slow service. In support of the second point, the operator has stated that their office matched riders for only 6 or 7% of all shared rides. All other shared rides were groups of people who had decided to travel together.

It may be that expectations for shared riding were too high because they were based on a different group of riders. According to the operator, the "bread and butter" of the regular taxi service is the Harbor-- the sailors. It may well be that sailors are more likely to travel in groups than elderly, handicapped, or low-income persons.

The incentive for two or more riders to group their trip is that they can travel twice as far for the same price. This appears to be a significant advantage and, indeed, shared rides are longer than exclusive rides. Shared vehicle trips averaged 2.5 miles in the January sample, and 3.0 miles in the August sample (compared to 1.7 miles and 1.5 miles respectively for exclusive rides). However, the program area is quite small-- about 20 square miles. Thus, relatively few trips that would be longer than 2.6 miles (approximate length with \$3.00 meter limit) are desired. Some longer trips that are desired are to destinations outside the program area, and, in many cases, these destinations can be reached by bus for the same 15¢

fare. In other words, those needing to make longer trips do appear to share rides in order to increase their meter limits, but relatively few people are affected by this incentive.

From the operator's perspective, the incentive to group riders is extremely limited. The operator cannot include a second drop-charge but is given a "bonus" of 15¢ for each second and subsequent rider.

In conclusion, program ridership grew quickly in early months, remained stable for some time, and then grew again at the beginning of the second year of operation to reach the targeted monthly patronage in the 14th and 15th months. Although the amount of shared riding was below expectations, it also increased over the life of the program, mainly due to the taxi meter rate increase in February 1979.

3.5.3 Average Fares and Trip Lengths

The nominal fare for the Harbor Area Program is 15¢, prepaid, an amount selected to conform with local public transit fares. However, coupons are purchased in advance and in books of ten which cannot be returned for cash. This leads to some hidden cost for individuals— the cost of not using all of the coupons purchased. A detailed analysis of coupons purchased before and during January compared to coupons used in January revealed that only two-thirds of the purchased coupons were actually used. Thus, the real average fare is 24¢ per passenger trip.

Average trip lengths have been monitored throughout the program and are considered by the staff of participating agencies to be low. Table 3 lists the average paid miles per passenger and the average paid miles per vehicle trip, by month.

Note that the average paid miles per passenger is simply the total paid miles divided by the total number of passengers. The actual passenger trip length was impossible to determine without waybills, but would be closer to the average vehicle trip length (i.e., the average paid miles per vehicle trip).

TABLE 3.

AVERAGE PAID MILES PER PASSENGER
AND PER VEHICLE TRIP, BY MONTH

Month	Average Paid Miles Per Passenger	Average Paid Miles Per Vehicle Trip
August	1.53	1.69
September	1.51	1.72
October	1.46	1.77
November	1.46	1.75
December	1.39	1.71
January 1979	1.48	1.77
February	1.42	1.75
March	1.40	1.75
April	1.39	1.71
May	1.43	1.83
June	1.40	1.81
July	1.39	1.76
August	1.39	1.78
September	1.45	1.83
October	1.50	1.84
November	<u>1.50</u>	<u>1.88</u>
Program Average	1.44	1.79
Cab Company*	2.67	3.74

*Averages from period November 1, 1978, through October 31, 1979.

The only source of data on trip lengths which distinguishes between exclusive and shared-ride trips are the samples of January and August waybills. Table 4 shows the distribution of vehicle trip lengths for exclusive and shared-rides from these samples. Vehicle trip lengths for exclusive rides were shorter in August than in January, while the opposite is true for shared rides. In January, 80% of sampled exclusive rides were less than 2.5 miles. In August, 87% were less than 2.5 miles. For shared rides, the proportion of sample vehicle trips 3 miles or longer rose from 27% to 41% between January and August. One reason for the decline in trip lengths for exclusive rides is the taxi meter rate increase which took effect in February. Greater awareness of the program in the community may also have helped to increase shared vehicle trip lengths.

Passenger trip lengths for exclusive rides are simply equal to the vehicle trip lengths, which averaged 1.68 miles in January and 1.54 miles in August. Passenger trip lengths for shared rides are total passenger-miles divided by total passengers. Conservatively assuming that one rider travels as far as the vehicle does and that all other riders travel only three-fourths of that distance, the total passenger-miles for samples of shared trips taken in January and August was determined. The January sample showed that 244 passengers traveled a total of 598 passenger miles for an average shared-ride passenger trip length of 2.45 miles. In August, 91 sampled trips carried 448 passengers for 1264.8 passenger miles— an average shared-ride passenger trip length of 2.82 miles.

By applying average passenger and vehicle trip lengths for exclusive and shared riding in January to all program activity up through January, and the same averages in August to program activity in February and beyond, the total program average passenger trip length is estimated to be

TABLE 4.
RANGE OF VEHICLE TRIP LENGTHS

<u>Trip Length</u>	<u>% of Exclusive Rides</u>		<u>% of Shared Rides</u>	
	<u>January</u>	<u>August</u>	<u>January</u>	<u>August</u>
0.0 - 0.4	6.0	5.4	3.6	0.5
0.5 - 0.9	24.1	24.8	14.6	16.2
1.0 - 1.4	27.0	26.8	14.6	12.6
1.5 - 1.9	12.0	18.9	10.9	9.4
2.0 - 2.4	10.8	11.1	16.5	12.0
2.5 - 2.9	6.5	5.3	12.7	8.4
3.0 - 3.4	4.8	2.4	4.5	5.2
3.5 - 3.9	2.1	1.2	3.6	6.8
4.0 - 4.4	2.6	1.6	6.4	5.8
4.5 - 4.9	0.9	0.9	1.8	4.7
5.0 - 5.4	1.2	0.7	1.8	5.8
5.5 - 5.9	1.2	0.3	0.9	3.7
6.0 - 6.4	0.3	0.3	0.9	3.7
6.5 - 6.9	0.2	0.3	3.6	1.0
7.0 and over	0.3	0.1	3.6	4.2
Sample Size	664	755	110	191
Average	1.68	1.54	2.52	2.96
Median	1.3	1.3	2.1	2.4

1.85 miles, and the average vehicle trip length is estimated to be 1.80.

All of the above data is summarized below in Table 5.

TABLE 5.
COMPARISON OF EXCLUSIVE AND SHARED RIDE
TRIP LENGTHS, IN MILES

<u>Measure</u>	<u>Ex- clusive Rides</u>	<u>Shared Rides</u>	<u>All Rides</u>
Average passenger trip length	1.58	2.74	1.85*
Average vehicle trip length	1.58	2.86	1.80*

*Note that the average passenger trip length is longer than the average vehicle trip length for all rides. This is because there is more than one passenger in the shared trips, and shared trips are longer than exclusive trips. Thus, the average shared passenger trip length has a greater effect on the program average than the average shared vehicle trip length.

The significant conclusion to be drawn here is that shared-ride passengers travel about 75% farther than exclusive-ride passengers.

3.5.4 Effect of the Subsidy Limit

An inspection of the January and August waybills showed that 13% of exclusive rides in January and 15% in August were long enough to incur meter charges over the \$3.00 subsidy limit. In these cases, users paid the amounts beyond the \$3.00 limit; however, these amounts were never reported. (See Section 4.2 for an estimate of user payments to cover charges over \$3.00). Further inspection of the waybills showed that the \$3.00 subsidy limit was sufficient, on the average, to pay for a trip 2.9 miles long in January and 2.2 miles long in August. Mileage charges

alone would have allowed a 3.0 mile trip at January rates and a 2.6 mile trip at August rates. Since the rate for wait time did not increase, it appears therefore that the riders were charged for more wait time in August than in January.

In the case of shared-riding, the meter limit was increased by \$3.00 for each additional passenger. As a result, an insignificant number of shared-ride trips exceeded the subsidy limit.

4. PRODUCTIVITY AND ECONOMICS

4.1 PRODUCTIVITY

Productivity for the Harbor Area Program can be measured and discussed in terms of usage of the vehicles and usage of the miles traveled by them.

4.1.1 Vehicle Productivity

One measure of vehicle productivity is passenger trips per vehicle trip. This measure is tabulated in Table 6, by month, and compared to productivity of shared trips and to percent of shared riding (shared vehicle trips divided by total vehicle trips).

All of these measures showed a modest increase after February because of the fare increase, as discussed previously, and have remained at a higher level. The measure which grew most was the productivity of shared trips (or vehicle occupancy of shared trips). The size of the groups sharing rides has grown over the life of the program. The reason for this growth, according to the Cab Company, is increased usage by groups of seniors participating in specific senior activities.

4.1.2 Mileage Productivity

One of the most common and useful measures of the efficiency of a taxi operation is the ratio of paid miles to total operated miles. The latter variable was not included in monthly program data. Therefore, the sample of waybills from January and August was used to calculate this ratio. Table 7 shows the results for exclusive riding and for shared riding.

Since each cab can operate as a regular taxi and as a program vehicle, it was necessary to determine paid miles

and non-paid miles for individual trips and combine the results. Non-paid miles for a trip are defined as the mileage from the end of the previous trip.

TABLE 6. VEHICLE PRODUCTIVITY, BY MONTH

<u>Month</u>	<u>Passenger Trips per Vehicle Trip</u>		<u>Passenger Trips Per Shared Vehicle Trip</u>	<u>% Shared Riding</u>
August	1.10		2.07	10
September	1.14		2.14	12
October	1.21		2.31	16
November	1.19		2.16	16
December	1.22	fare increase	2.20	19
January 1979	1.20	↓	2.22	16
February	1.22		2.37	16
March	1.25		2.32	19
April	1.23		2.26	18
May	1.28		2.43	19
June	1.29		2.59	18
July	1.29		2.39	19
August	1.27		2.43	19
September	1.26		2.31	20
October	1.23		2.34	17
November	<u>1.25</u>		<u>2.42</u>	<u>18</u>
Program Average	1.24		2.35	18

There were no significant differences between January's and August's ratios except for exclusive riding on weekends (up from 34% to 41%). Total paid miles were distributed into weekday and weekend day categories in proportion to vehicle trip distribution. January ratios were applied to program activity through January while August ratios were applied to activity after January in order to determine total program ratios.

TABLE 7.
RATIO OF PAID MILES* TO TOTAL MILES
(number of trips sampled)

	<u>Exclusive Ride</u>		<u>Shared Ride</u>		<u>All Rides</u>
Weekdays	44%	(398)	55%	(227)	47%
Weekends	<u>39%</u>	(97)	<u>35%</u>	(49)	<u>37%</u>
All days	42%		50%		44%

Shared riding shows a higher paid-mile to total-mile ratio than exclusive riding. Also, weekday productivity is higher than weekend productivity because the larger number of vehicle trips operated on weekdays allows for more efficient deadheading of vehicles between trips. The ratio for all program trips is estimated to be 44%.

The ratio of paid to total miles for the Cab Company in the period from November 1978 through October 1979 was only 43%. Thus, the program appears to be operating as efficiently—in terms of percent paid miles—as the cab company in general.

A final measure of mileage productivity is the ratio of passenger miles to vehicle trips and to vehicle miles. The detailed data from January and August were used to distinguish between exclusive and shared riding. The results are tabulated below.

*Actually only subsidized miles (i.e., under the \$3.00 limit for exclusive rides) are included, so these figures slightly underestimate productivity. The conclusion that the program allowed operation as efficient as general cab company business is unaffected.

TABLE 8.
RATIO OF SUBSIDIZED PASSENGER MILES
TO VEHICLE TRIPS AND SUBSIDIZED VEHICLE MILES

<u>Passenger-miles per:</u>	<u>Exclusive Rides</u>	<u>Shared Rides</u>	<u>All Rides</u>
Vehicle-trip	1.4	6.4	2.3
Subsidized vehicle mile	1.0	2.2	1.4
Total vehicle-mile (in- cluding deadheading)	0.4	1.1	0.6

Again, shared riding is seen to be far more productive than exclusive riding with more than four times as many passenger miles per vehicle trip and more than twice the number of passenger miles per paid vehicle mile. By multiplying the latter ratio by the ratio of paid miles to total vehicle miles, the passenger miles per total vehicle miles has been estimated.

4.2 PROGRAM COSTS--METER CHARGES *

One advantage of a user-side subsidy program in a restricted area, or with a limit on allowable travel, is that operating costs are more easily controlled. A second advantage is that the operating subsidy is paid directly for usage of the service rather than service per se. Thus, per passenger costs of a user-side subsidized service can be lower than those of provider-side subsidized programs when demand is relatively low. Naturally, shared riding is somewhat less costly and more productive than exclusive riding.

*Throughout this chapter, unless otherwise specified, meter charges include only charges up to the subsidy limit, since charges over the limit, paid by users, were not recorded.

The costs of the Harbor Area Program are divided into three major categories: 1) those that are covered by charges from the taxi meters, 2) other operating costs not covered by meter charges, and 3) the associated administrative costs. Meter charges are further divided into the user (coupon) share and the subsidized share. Note that the meter charges, plus other operating costs not covered by meter charges, represent the operating costs of the cab company plus their profit.

As presented in Section 3.5.3, the average fare or the user share of meter charges was nominally 15¢. However, since not all coupons were used and since coupons were nonredeemable, total coupon revenue amounted to a much higher amount—24¢ per passenger trip. It is impossible to compare the user share for shared trips versus exclusive trips because the actual user share varied from person to person depending on what proportion of purchased coupons were used.

The subsidized share of meter charges is simply the difference between meter charges and coupon revenue. A monthly tabulation of user and subsidized shares would be misleading since coupon revenue for any month relates to some coupon use in the next month.

Table 9 shows the total meter charges (up to the subsidy limit) per passenger trip, per vehicle trip and per subsidized paid mile by month. Program averages are also shown with a breakdown of user share and subsidized share.

It can be seen that, except for increases in February and September, each measure remains relatively constant. The February increases were due entirely to the fare increase. The changes in September are caused by longer trip lengths. For the total program to date, users paid for about 12% of the meter charge portion of total costs.

TABLE 9.
METER CHARGE RATIOS, BY MONTH

Month	Meter Charges*	Meter Charge per:		
		Passenger Trip	Vehicle Trip	Paid* Vehicle Mile
August	\$ 300	\$2.00	\$2.21	\$1.39
September	3,177	1.98	2.25	1.39
October	5,711	1.93	2.34	1.41
November	6,681	1.91	2.27	1.37
December	7,450	1.83	2.24	1.33
January 1979	7,974	1.92	2.30	1.39
February	8,201	2.01	2.46	1.51
March	9,968	1.99	2.49	1.49
April	8,964	2.00	2.45	1.48
May	10,088	2.02	2.58	1.54
June	8,934	2.00	2.57	1.55
July	9,214	2.02	2.55	1.53
August	11,083	2.00	2.55	1.52
September	11,411	2.05	2.59	1.53
October	13,262	2.13	2.61	1.59
November	<u>13,023</u>	<u>2.11</u>	<u>2.64</u>	<u>1.60</u>
Program Average	--	2.01	2.49	1.50
User Share	(12%)	0.24	0.30	.18
Subsidized Share	(88%)	1.77	2.19	1.32

*Amounts paid by riders to cover meter charges over the subsidy limits were not reported. Therefore, "meter charges" here are subsidized meter charges, and "paid vehicle miles" are subsidized vehicle miles.

Out of a total of 67,534 passenger trips, approximately 6,500 exclusive ride trips required user payments to cover charges beyond the \$3.00 subsidy limit, based on the waybill samples. From the same data, it has been estimated these 6,500 trips involved an average of 1.05 unsubsidized miles of travel at \$.83 per mile in January and \$.99 per mile in August (including wait time), for an average payment over the subsidy limit of about \$1. However, the great majority of all trips, and essentially all shared-ride trips, involved no payments over the subsidy limit.

4.3 OTHER OPERATING COSTS

The city and the taxi operator incurred other costs, beyond the meter charges, which could be considered operational. These are:

Lease of wheelchair-lift van	\$14,200
City paid expense of extra order taker	6,500
Cab company paid expense of extra order taker	6,400
<hr/>	<hr/>
Total	\$27,100

These expenses amount to an increase of 20% of meter charges and when added to those charges could be described as total operating cost and cab company profit. Unfortunately, it is impossible to allocate these costs to exclusive or shared riding.

Table 10 computes total operating plus profit cost of the program in terms of four important ratios. The meter charge portion of this cost includes a comparison of exclusive and shared riding based on a detailed analysis of January and August coupons and way bills.

TABLE 10.
OPERATING PLUS PROFIT COST RATIOS

<u>Cost per:</u>	<u>Meter Charges</u>			<u>Other</u> <u>oper-</u> <u>ating</u> <u>Costs</u>	<u>Total</u>	
	<u>Exclusive</u> <u>Rides</u>	<u>Shared</u> <u>Rides</u>	<u>All</u> <u>Rides</u>	<u>All</u> <u>Rides</u>	<u>Program</u>	<u>Cab</u> <u>Company</u> ²
Passenger trip	\$2.19	\$1.63	\$2.01	\$0.40	\$2.41	\$3.16
	1.57	0.60	1.08	0.22	1.30	NA
Vehicle trip	2.19	3.83	2.49	0.50	2.99	4.43
	1.57 ¹	1.34	1.50 ¹	0.30 ¹	1.80 ¹	1.18

¹Cost per "subsidized" paid vehicle mile (see Section 3.5.3)

²Operating and profit charges; Averages from the period
November 1, 1978 through October 31, 1979

When exclusive and shared riding can be compared, the advantage of shared riding is clear. Shared rides are 25% cheaper per passenger trip and 62% cheaper per passenger mile. Shared riding is less expensive even in terms of paid

vehicle miles since shared trips are longer than exclusive trips and the drop charge represents a smaller portion of the total charge. The same reasoning applies to the even lower cost per mile of all taxi trips.

4.4 ADMINISTRATIVE AND TOTAL COSTS

In order to determine the total cost of the program, administrative expenses must be added to the operating plus profit costs described above. All costs are for the program to date—August 13, 1978 through November 30, 1979.

TABLE 11.
ADMINISTRATIVE COSTS

Start-up cost		
City Department of Transportation		\$ 5,000
Direct costs		
Printing and distributing coupons	\$27,100	
City-paid cost of extra overhead	4,500	
Cab Company-paid cost of extra overhead	5,000	
		<hr/>
		36,600
Indirect costs		
City Department of Transportation		<hr/> 3,000
TOTAL		\$44,600

It was impossible to obtain precise expenses paid by the operator attributable to the program but not reimbursed by the City until later. The extra ordertaker worked for seven months without City reimbursement at an annual cost of \$11,000 for salary and benefits. Extra overhead expenses attributable to the program were estimated at 5% of total operating cost. After September 1, expenses were based on

the approved contract for the second year of operation. This includes \$11,000 for salary and benefits of one fulltime ordertaker plus 9% of budgeted operating costs for extra overhead. Use of a lower overhead rate before September is based on a lower level of effort required. The total cost of the program and the net cost are shown in Table 12.

TABLE 12.
TOTAL AND NET COSTS

Meter Charges	\$135,440
Other operating costs	27,100
Administrative costs	<u>44,600</u>
TOTAL COST	207,140
Less coupon revenue	<u>- 16,200</u>
NET COST	\$190,940

The distribution of these costs over passenger trips, estimated passenger miles, "subsidized" paid vehicle miles and estimated total vehicle miles is shown in Table 13.

The difference between the total and net cost is the revenue—an average of 24¢ per passenger trip. Revenue covers less than 8% of the total cost. In other words, the subsidy or public cost of the program is over 92% of the total.

TABLE 13.
TOTAL AND NET COST RATIOS

<u>Cost per:</u>	<u>Total Cost</u>	<u>Net Cost</u>
Passenger trip	\$3.07	\$2.83
Passenger mile	1.66	1.53
Paid vehicle mile*	2.29	2.11
Total vehicle mile	1.18	0.94

*Based on an estimated 90,461 total subsidized paid vehicle miles.

The total cost per passenger trip is the lowest of all the comparable paratransit services funded by Transportation Development Act monies in the county of Los Angeles as shown in Table 14.

TABLE 14.
COMPARISON OF TDA ARTICLE 4.5 PROGRAMS IN
LOS ANGELES COUNTY

<u>Project Area</u>	<u>Type of Service</u>	<u>Total cost per passenger (1978/79)</u>
Harbor	User-side subsidy	\$3.07 ¹
Pomona	Broker	4.98
Compton	Dial-a-ride	6.52
Downey	For "shut-in" handicapped	14.25
Glendora	Dial-a-ride	5.67
Lomita	User-side subsidy	3.17
Lynwood ²	Dial-a-ride	1.97
Monterey Park	Dial-a-ride	8.81
Redondo Beach	User-side subsidy	4.74
Telacu	Dial-a-ride handicapped only	10.78
Venice	User-side subsidy	5.12

¹Uses costs derived in this report 8/78-11/79

²Service area is only 5 sq. miles

5. IMPACTS

5.1 IMPACTS ON USERS

The population of the Harbor Area which is eligible for this transportation program numbers about 30,000. Although precise information was not available, an estimated 1,000 persons—only 3%—have participated since the beginning of service by buying coupons.

In order to understand the impact of the program on those who use it, it is important to describe the participants in more detail. The source of that information comes from a small survey of users conducted in March plus a sampling of rider coupons that were used in January and in August. There is no information available on taxi riders who are not program participants.

5.1.1 The User Survey and Sample Data

In March, the City's Department of Community Development conducted a limited survey of program participants which had been designed earlier to help evaluate other City-sponsored transportation programs. A list of names and addresses of approximately 100 users was selected from records of coupon-book purchasers, and the survey was mailed to them with a self-addressed, stamped envelope. The actual survey instrument and a summary of responses is included in Appendix B. Fifty-one surveys were completed and returned.

The sample of rider coupons used in January and August contains information that was coded on each coupon at the time of purchase. That information includes details of the age, ethnic group, income, family size, and type of physical handicap of each person.

5.1.2 The Users

About 94% of the survey respondents were age 60 and over. Over half of these persons indicated that they were also physically disabled (57% of the total), and most had incomes below \$415.00 per month (80% of the total).

Of the remaining 6% of survey respondents who were under 60, all reported incomes under \$415.00 per month, and two-thirds also reported that they were physically disabled.

With one exception, survey results correlated fairly well with the sample of rider coupons from January and August. The exception is the incidence of physical disabilities, and the reason that 57% of those surveyed indicated that they were disabled—as opposed to only 9% of the January sample and 8% of the August sample—is simple and probably quite common across the country. Eligibility for this and other elderly and handicapped transportation programs is based upon either age or evidence of a handicap. Since a high proportion of the elderly are at least not very physically able, and since it is usually somewhat difficult to verify physical disability (a doctor's certificate is often required), the handicapped elderly often don't bother to mention their physical limitations; they qualify simply by being over 60. Therefore, the number of handicapped persons participating is likely to be significantly larger than reported.

The survey provided no definition of "Physical disability" and many older respondents who indicated that they were disabled had difficulty in walking several blocks. These people might not have qualified for the program as handicapped but, by their own definition, they certainly are transportation handicapped.

Therefore, using a combination of survey plus January and August sample data, and the user's definition of handicapped, participants are almost all age 60 or over, more than half are elderly and handicapped, and nearly half are elderly and handicapped and low-income.

User information compiled from the sample of almost 900 coupons used in January and over 1200 used in August is shown below. Note that this is from a sample of trips taken, not individual users.

TABLE 15.
CHARACTERISTICS OF USERS

<u>Characteristics</u>	<u>% of all users</u>		<u>% of category which shared trips</u>	
	<u>January</u>	<u>August</u>	<u>January</u>	<u>August</u>
Age:				
18-59	18.2	15.2	20.9	48.9
60-65	10.8	9.9	26.8	34.2
Over 65	71.0	74.9	28.9	34.0
Ethnic group:				
Caucasian	70.0	63.2	27.9	32.8
Latin	21.4	28.4	28.1	42.4
Black	6.2	3.1	16.1	40.5
Other	2.3	5.3	28.6	33.8
Monthly income:				
under \$250	8.1	5.9	26.0	45.7
\$251-\$450	69.3	72.0	26.4	32.7
\$451-\$850	19.3	19.5	32.9	50.4
over \$850	3.2	2.6	13.8	16.1
Family size:				
1	64.4	61.7	22.3	28.2
2	29.7	31.6	39.3	50.0
3	1.2	4.8	18.2	43.9
4	1.0	0.2	55.6	0
5 or more	3.6	1.7	9.4	30.0
Handicapped:				
no assistance req'd	3.2	2.6	17.2	41.9
assistance req'd	0.9	1.7	0	15.0
wheelchair	2.8	1.5	0	11.1
blind	1.8	0.8	12.5	62.5
All Handicapped	8.7	6.6	9.0	31.6
All riders	100	100	27.2	36.4

This sampling of trips (not individuals) confirms that users are older and poor. It also shows that they are predominately Caucasian and live alone or with just one other person. There was no major change in these characteristics between January and August.

A further analysis of the sample data was made to determine if any particular group was more apt to share rides. The proportion of all passenger trips sampled which were shared rose from 27% in January to 36% in August, and every category except one showed an increase. The January sample indicated that the only significant group more likely to share rides consisted of individuals living in multi-person households. The August sample showed greater than average shared-riding riders in the following categories: under age 60, Black or Latin, and living in multi-person households. Blind users surveyed show a very high rate of shared riding, but the results are based on only 10 trips. Certain income groups also appear as more frequent users of shared riding, but the figures are hard to interpret.

The survey was conducted with a slightly biased sample. A comparison of the names of those surveyed with a list of all coupons used in January, summarized by name, revealed that survey respondents averaged 13.5 trips in January, while the average user in January made only 8 trips. Therefore, survey respondents were more active than most program participants.

Important findings of the survey concerning the characteristics of users are: 1) over three-fourths of the participants responding were female and over 60% were retired, and 2) over three-fourths of the respondents stated that they used the service twice a week or more.

Before the program was available, over 40% made some trips by taxi, and a similar number made some trips as a passenger in someone else's car. About 35% of the respondents made some of their trips by foot, and the same number traveled by bus (40% of respondents live within two blocks of a bus stop and about 85% within four blocks). Sixteen percent of the respondents indicated that there were some trips which they did not make before the program started. Only 10% used their own car for some trips. Survey respondents, therefore, were a fairly transit-dependent group. Those who indicated that they were physically disabled averaged over 14 program trips in January, or 25% of their desired trip making (assuming that the self-defined physically disabled respondent corresponds to the Southern California Council of Government's definition of transportation-handicapped persons who desire an estimated 1.8 trips per day). By contrast, if January's average of 8 trips per person applies to transportation handicapped, those riders made about 15% of their estimated desired trips on the subsidized taxi service.

Survey respondents rated the service as fairly good, but certainly not great. Nearly 30% reported some difficulty getting service, mainly because of long wait-times for pickups. Almost half found the phone line busy at least some of the time. Over half stated that there were destinations outside of the service boundaries that they needed to reach.

On the other hand, 80% of the respondents reported that they were picked up on time (as scheduled); almost 90% found the telephone operator (ordertaker) courteous, helpful, and patient; and almost all reported that the driver gave them enough time to reach the vehicle.

5.1.3 Impacts on the Users

The results of the survey imply that the program has had a significant, positive impact on the mobility of those who use the service and even, to some degree, on their peace of mind. The fact that survey respondents made much more use of the service than participants in general, however, dilutes that conclusion somewhat.

The survey posed two questions that relate directly to impacts. One asked respondents how well the program filled their transportation needs; the other asked if the program had made a change in their lives. Over three-fourths of the respondents stated that the program filled their transportation needs either completely or greatly, and 90% said that the program made a change in their lives.

Open-ended responses to the latter question revealed a few interesting and important perceptions. The majority simply stated that they could get out and about more because of the program, but some specifically used phrases such as: gives me a feeling of freedom, independence, and peace of mind. All of these clearly indicate an increase or at least the perception of an increase in mobility.

A few other responses point to other benefits of such a transportation service. Several persons stated that they could now afford to go out, even though they could not walk to the bus. Apparently, these are people who are unable to use public transit because of physical problems and were unable to use the taxi because of the cost. This taxi service helps both problems.

Finally, two respondents stated that they now feel safe traveling. Whether their fear had been based on street crime or on a reduced ability to drive was not determined.

This user-side subsidy program has not had a significant impact on the target population as a whole—only about 3% of the estimated elderly, handicapped, and low-income population have ever used the service. The program has had a strong, positive impact on the mobility of program participants for short trips—an estimated 15% of the transportation needs of transportation-handicapped individuals (over half of the users) are met by the program. However, about half of those surveyed need to reach some destinations outside the service area.

5.2 IMPACTS ON OPERATOR

Because of the unanticipated burden of administrative functions and the relatively short trips requested by participants, the operator feels that this program has not been as profitable as his taxi business in general. Although the operator did not experience any problems of compatibility of program and non-program trips, response time for program trips worsened relative to response time for non-program trips.

5.2.1 Profitability

A program of this type, in which the public sector enlists the aid of the private sector to serve specific needs of a population group, must account for the profitability of the private-sector participant. If that participant loses money, the possibility of future private-sector assistance in general may be reduced and, if losses are significant, at least one participant could be driven out of business. It was not possible to conclusively verify or contradict the operator's feeling about poor profitability of program trips, but the following discussion establishes the rationale for his feelings.

The contract between the City and the taxi operator for the Harbor Area Program was written to allow for adjustments to cover additional administrative costs and thus account for profitability. After three months of operation, City staff and the operator were to meet to discuss the necessity of hiring an additional ordertaker. The Cab Company insisted that this position was required because of the new, unforeseen administrative load and, indeed, had already hired a person. The City, however, did not immediately agree to amend the contract, and it was not until six months later that funds for the ordertaker were approved.

Before the program began, the Cab Company employed two ordertakers and two dispatchers in peak hours, and carried over 31,000 passengers per month. The program had increased business by about 5,000 passengers per month by November 1979. Given that each of the 5,000 additional passengers requires more paperwork just for ordertaking than each of the 31,000 did, an increase of 25% for staffing would seem reasonable.

In August 1979, a new one-year contract was approved which includes \$11,000 for one fulltime ordertaker and provides funds for additional overhead expenses required by the program in the amount of \$18,000 (9% of the total operating budget for next year). Thus, for the last three months of the first year's operation and for all of the second year, the financial position of the operator is at least greatly improved.

The second aspect of the program which the operator felt had an adverse impact on profitability is short trips requested by the users. Normally, the drop-charge covers the cost of ordertaking, dispatching, and administering the operation. The mileage and wait-time charges cover the

operating costs of the taxis, and it is in this latter portion of income that profit is to be made. Thus, the operator generally prefers longer trips, since they generate more paid miles, as long as the proportion of non-paid miles does not also increase. As was mentioned earlier, program trips have been short—about 1.76 paid miles per vehicle trip compared to 3.78 paid miles per vehicle trip before the program began. Thus, since the drop-charge must pay for a larger expense and since program trips are shorter than other trips, the operator feels that the program is less profitable than his normal taxi operation.

For the first nine months, program trips appeared to be less profitable to the operator than non-program trips. With payment from the City for the additional ordertaker for the last three months of the first year, profitability improved. For the second year, the financial position of the operator will be further improved. At the time of this writing the taxi operator stated that he would make a profit in the second year of operation that should cover the losses incurred in the first year.

5.2.2 Compatibility of Program and Non-Program Trips

Except for the wheelchair-accessible van, all of the Checker cabs used by the taxi operator are available for both program and non-program trips. Apparently the fleet size has been adequate to handle the increase in business, as the operator has not purchased new vehicles specifically for the program.

As program demand has increased, average response time for program trips has increased significantly. Average response time for non-program trips has also increased but not as substantially. Except for this difference, the mix of program and non-program trips appears to be compatible. The operator does not feel that the program has had any damaging impact on his regular business.

6. SUMMARY AND CONCLUSIONS

6.1 KEY PROGRAM CHARACTERISTICS

The Harbor Area Program provides transportation for elderly, handicapped, and low-income residents of this small area—about 20 square miles—in the City of Los Angeles. In most respects, it is a normal taxi operation, utilizing a meter fare payment system. Riders pay for a trip worth up to \$3.00 on the meter (about 2.6 miles) with a prepaid 15¢ coupon. The program pays the balance of meter fare after the coupon (filled out with mileage and fare, and signed by the rider) is turned in by the taxi company. This arrangement appears designed to minimize opportunities for fraud. Shared riding is encouraged by adding \$3.00 to the meter limit for each extra rider. Thus, the service is highly subsidized—92% of total costs were paid from public funds.

The subsidy is from the user side, allowing the City to pay only for services used. The program has proven to be far more cost-effective than the dial-a-ride services which have operated in Los Angeles for six years. Coupons are purchased in books of ten for \$1.50 from a third agency under contract to the taxi operator. Coupon revenue is forwarded through the Cab Company to the City, and the City reimburses the operator the full amount of meter fares (up to the limits) plus an extra 15¢ for each second and subsequent rider of a shared trip. The monthly lease cost of a wheelchair-accessible van plus the salary and benefits of an extra ordertaker are also reimbursed by the City.

In addition to this taxi operation, the company uses a wheelchair-accessible van for transporting non-

ambulatory passengers. One hour advance notice is required for use of the van.

The program has been funded (and is re-funded for two more years) entirely by the State's Transportation Development Act, Intra-community Services monies plus coupon revenue.

The performance of the operation was exceptionally good, as shown below, and shared riding performed much better than exclusive riding.

TABLE 16.
SUMMARY OF SERVICE PERFORMANCE

	Program			
	<u>All Rides</u>	<u>Exclu- sive Rides</u>	<u>Shared Rides</u>	<u>Cab Company¹</u>
Net cost/Passenger trip	\$2.83	--	--	--
Net cost/Passenger mile	\$1.53	--	--	--
Net cost/Paid vehicle mile	\$2.11	--	--	--
Net cost/Total vehicle mile	\$0.94	--	--	--
Operating + profit cost/Passenger trip	\$2.41	\$2.19	\$1.63 ²	\$3.16
Operating + profit cost/Passenger mile	\$1.30	\$1.57	\$0.60	--
Operating + profit cost/Vehicle trip	\$2.99	\$2.19	\$3.83	\$4.43
Operating + profit cost/Paid vehicle mile	\$1.80	\$1.57	\$1.34	\$1.18
Average vehicle trip length	1.80	1.58	2.86	3.74
Average passenger trip length	1.85	1.58	2.74	--
Average passenger/Vehicle trip	1.24	1.0	2.35	1.40
Average weekday ridership	166	--	--	1,644
Passenger mile/Vehicle trip	2.3	1.4	6.4	--
Passenger mile/Total vehicle miles	0.6	0.4	1.1	--
Ratio of paid miles to total miles	44%	42%	50%	43%

¹Averages from the period November 1, 1978 through October 31, 1979.

²These figures are for comparison of shared and exclusive riding only; they include meter charges but not other operating costs (See Table 10).

6.2 THE USER'S PERSPECTIVE

Only an estimated 3% of the eligible population have made use of the service in over a year of operation. Those who do use it are almost all elderly, more than half are elderly and handicapped, and almost half are elderly and handicapped and low-income. Most users live alone or with just one other person and are relatively transportation-disadvantaged.

Participants are fairly well satisfied with the service, although the separate phone line is often busy and they must wait up to from 30 to 40 minutes for a ride. Half of the users have destinations they need to reach which are outside the service area.

Nevertheless, most of the users surveyed felt that the service fills their transportation needs completely or greatly, and almost all of them stated that it has made a positive change in their life.

6.3 THE OPERATOR'S PERSPECTIVE

For the first nine months of operation, the Cab Company felt that it was losing money on the operation because of an unexpectedly large administrative load and very short trips. Since that time, the City has reimbursed the expense of an extra ordertaker, and the second year's contract adds an overhead fee—9% of operating costs—to allowable charges.

Thus, the second year should put the Cab Company in a much better financial position. It is not yet possible, however, to determine if program trips will be as profitable as non-program trips.

6.4 THE PUBLIC PERSPECTIVE

The provision of transportation for a mobility-impaired group at a net price of \$2.83 per trip seems to be a reasonable use of public monies. The Harbor Area Program provides the lowest-cost special-transportation service of all State-funded operations in the County of Los Angeles.

The cost could be lowered somewhat, however, if riders shared their trips more frequently. Besides a lack of inclination on their part to do so, the program does not provide sufficient incentive to either the users or the operator for grouping trips. Also, elderly or handicapped organizations have not participated substantially—many of these organizations provide free transportation for their clients.

6.5 TRANSFERABILITY OF FINDINGS

The major conclusions of this study can be transferred to other areas with careful consideration as follows:

1. The user-side subsidy concept, employing an existing taxi operator, is clearly important to the success of the program. No money or time was wasted in developing a new operation. The experience and facilities of an existing operator were used to their best advantage, and the public has paid only for services used.

Only one taxi company operates in the Harbor area, and it was willing to participate. In other areas, either lack of an operator or the existence of more than one could present a problem. Obviously, the willingness of the operator(s) to participate is essential and could require a well-documented, carefully planned proposal from the agency involved.

2. Only about 3% of the eligible population participated in the program, using the service about 8 times per month on the average. Riders are almost all elderly; more than half are elderly and transportationally handicapped; and nearly half are elderly handicapped and low income. They live alone or with just one other person and are relatively transit dependent.

While the characteristics of users are likely to be similar for such a program in another area, participation and usage rates may vary. The very independent personal travel habits of Southern California and the lack of participation of organized groups in the Harbor Program limit the transferability of those findings.

3. The average operating and administrative costs per passenger trip are \$1.97 and \$1.13 respectively, for a total cost of \$3.10. Revenue per passenger trip averaged 24¢. These figures are strongly influenced by a number of variables which, in other areas, are either given (i.e., prevailing taxi rates) or can be determined by the agency (i.e., fare/subsidy levels and limits on allowable travel).
4. The frequency of shared riding was lower than anticipated but increased with an increase in taxi meter rates. Only 18% of vehicle trips carried two or more passengers and the average number of passengers per vehicle trip was 1.24. There was a limited incentive for either riders or the

operator to group rides. The incentive for riders (an increase in the \$3.00 limit on subsidized fare) had limited effectiveness due to the small size of the service area. In addition, there was no significant participation by organized groups of seniors or handicapped.

Again, agencies in other areas could improve upon the proportion of shared riding by providing better incentives and with more active participation of organized groups.

5. Information provided by the taxi operator shows that the response time for program trips worsened relative to response time for regular customers. A specific reason for this difference could not be determined, but an effort by the taxi dispatcher to group trips may have been a contributing factor. Also, response time for all riders worsened considerably, probably due to a failure to add to the fleet to accommodate new ridership.

The possibility of such a "reduction" of service exists for all areas. However, the problem could be mitigated contractually by requiring maintenance of some service standards such as response time, particularly if such a requirement was tied to payments.

6. The taxi operator in the Harbor Area Program felt that program trips were less profitable than non-program trips. Although a method existed to adjust the contract to allow the city to increase payments to the operator for legitimate administrative

expenses, the city did not provide such funds until six months after the operator formally requested them.

The profitability of such programs for the private sector participant must receive the critical attention of the sponsoring agency from the outset. If the financial position of the private operator is allowed to deteriorate, the program will fail and other potential private-operators will be discouraged from participating.

7. The major reasons for a lack of profitability cited by the operator were very short trip lengths and an unexpectedly large administrative burden.

Both of these factors may be controlled by the sponsoring agency. The former is related to the size of the service area and any limits placed on allowable travel. The administrative work required— data collection— certainly is important to some degree. However, data collection does cost time and money, and therefore, its importance should be carefully evaluated by the sponsoring agency.

8. A taxi meter rate increase led to a reduction in exclusive ride trip lengths and an increase in shared riding. Low incomes of participants coupled with the fare and shared riding mechanisms are key factors relating to the transferability of this finding. If there is a limit on subsidized travel tied to the meter charge, people will tend to drop longer trips, or share rides when a rate increase is implemented. If the limit is on distance instead, the impact of a rate increase would be felt by the sponsoring agency in higher subsidies.

APPENDIX A
TOTAL CAB COMPANY AND PROGRAM OPERATING DATA

<u>Month</u>	<u>Vehicle Trips</u>			<u>Passenger Trips</u>			<u>Paid</u>	<u>Meter</u>
	<u>Exclusive</u>	<u>Shared</u>	<u>Total</u>	<u>Exclusive</u>	<u>Shared</u>	<u>Total</u>	<u>Miles</u>	<u>Charges</u>
August	123	13	136	123	27	150	230	\$ 300.15
September	1,236	173	1,409	1,236	371	1,607	2,425	3,176.60
October	2,050	391	2,441	2,050	903	2,953	4,315	5,711.25
November	2,459	481	2,940	2,459	1,038	3,497	5,133	6,680.55
December 78	2,711	616	3,327	2,711	1,356	4,067	5,693	7,449.75
January 79	2,900	561	3,461	2,900	1,248	4,148	6,138	7,974.35
February	2,796	543	3,339	2,796	1,289	4,085	5,834	8,200.90
March	3,249	758	4,007	3,249	1,765	5,014	7,002	9,968.00
April	2,994	660	3,654	2,994	1,492	4,486	6,255	8,964.20
May	3,156	753	3,909	3,156	1,832	4,988	7,163	10,088.45
June	2,844	626	3,470	2,844	1,621	4,465	6,285	8,934.20
July	2,918	690	3,608	2,918	1,650	4,568	6,345	9,214.00
August	3,518	834	4,352	3,518	2,029	5,547	7,732	11,082.90
September	3,526	883	4,409	3,526	2,039	5,565	8,082	11,410.75
October	4,225	856	5,081	4,225	2,004	6,229	9,372	13,261.75
November	<u>4,062</u>	<u>870</u>	<u>4,932</u>	<u>4,062</u>	<u>2,103</u>	<u>6,165</u>	<u>9,263</u>	<u>13,023.20</u>
PROGRAM								
TOTALS	44,767	9,708	54,475	44,767	22,767	67,534	97,267	\$135,440.70
WILMINGTON CAB COMPANY TOTAL OPERATING DATA (including program)								
November 1, 1978 - October 31, 1979:								
	NA	NA	298,760	NA	NA	419,101	1,117,302	\$1,323,486.
							(2,580,698)	total miles
Average Month:								
	NA	NA	24,897	NA	NA	34,925	93,108	\$ 110,290.
							(215,058)	total miles

APPENDIX B
USER SURVEY FORMS AND RESULTS

This survey was designed by the Los Angeles Department of Transportation to help evaluate other demonstration projects. It was mailed in March, 1978 to about 100 persons selected from the lists of participants. Fifty one surveys were completed, including four by husband/wife or mother/daughter pairs.

The actual survey instrument is included here with the number of responses for each question and answer.

SHARED-RIDE SURVEY - MARCH, 1978

We need your assistance to continue improving this service.
Please fill out this form and leave it with the driver or
take it home and mail it back in the prepaid envelope.

Thank you;

of
responses
48

1. How many times do you use Shared-A-Ride?
First time 1 Every Day 5
2-3 Times a week 31 Once a week 10
2. Have you had difficulty getting service? 47
No 34 Yes 13 (Why?) _____
3. Was their phone busy? Yes 19 No 23 44
Sometimes 2
4. Was the telephone operator? 49
Courteous Yes 44 No 4
Helpful
Patient
5. Were you picked up on time? 33 Early 2 51
Late 8 usually 4 sometimes 4
6. Were you ready? Yes 51 No 0 51
7. Did the driver: Give you enough time to reach the vehicle 41
after the horn was sounded? Yes 39 No 2
8. How did you generally get around before Shared-A-Ride became 94
available?
Own Auto 5 RTD Bus 17 Walk 17
Did not go 8 Taxi 21 Other 5
Rode with Other 21
9. How did you hear about Shared-A-Ride? 57
Employer 0 Poster, bus schedule, Handbill or brochure 0
Employment or training 2 Newspaper 14
Program Friends or neighbors 21 Television 2
Health Care Facility 4 Radio 1
Social Service Agency 7 Other 6
10. How many in your household use the service? 50
1 - 38
2 - 9
3 - 3
11. Has Shared-A-Ride filled your transportation needs? 49
Completely 14 Greatly 23
Partially 8 Slightly 4
Not at all 0
12. Has Shared-A-Ride made a change in your life? Yes 43 No 5 48
If yes, what? _____
13. Are there destinations out side of Shared-A-Ride's service 48
boundaries that you need to reach? No 25 Yes 23
If yes, where? _____
14. To what group do you belong? Male 12 Female 43 55
Under 10 0 24-59 3 (F)
16-23 1(F) 60 or older 39(Female) 12(Male)

15. Are you physically disabled? Yes 29 No 17 46
16. Are you presently employed? Yes 1 No. 43 44
17. What is your occupation? 51
- | | | | |
|-----------|----------|------------|---------------------------------|
| Skilled | <u>2</u> | Unemployed | <u>1</u> |
| Unskilled | <u>1</u> | Retired | <u>23</u> |
| Student | <u>0</u> | Housewife | <u>14 +4 retired housewives</u> |
18. Is your income per month: Below \$415 39 \$415-\$1,040 9 48
- Above \$1,040 0
19. How many blocks from your home is the nearest bus stop? 1 - 4 41
- | | |
|--|--------------|
| | <u>2 -12</u> |
| | <u>3 - 8</u> |
| | 4 -10 |
| | 5+- 7 |
- Average 3.8
20. Is the 15¢ fare reasonable? Yes 45 No 0 45
21. If no, what fee is reasonable? -----

Feel free to add your own comments. Thank you for completing this questionnaire.

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URBAN MASS TRANSPORTATION
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